

*BELLE presents
the 4th International Conference on*

**HORMESIS:
IMPLICATIONS FOR TOXICOLOGY,
MEDICINE AND RISK ASSESMENT**

*The Annual Meeting of the
International Hormesis Society*

June 6 -8, 2005

University of Massachusetts, Amherst, MA

Conference Directors: Edward J. Calabrese, Ph.D., Paul T. Kostecki, Ph.D.



**THRESHOLD • ADAPTIVE • BIDIRECTIONAL • BIPHASIC
HORMETIC • NON-MONOTONIC • U/J-SHAPED • PARADOXICAL**

INTERNATIONAL HORMESIS SOCIETY MEMBERSHIP

The International Hormesis Society is a professional society designed to enhance understanding of the nature of the dose response and its implications for science and society. Those individuals with a professional interest in these areas will be eligible for membership. Applications for membership can be found at www.hormesisociety.org. Annual membership rates are as follows: Corporate - \$1000.00 (US), Individual - \$125.00 (US) and Student \$10.00 (US).

As part of the Society membership, each corporate and individual member will receive a subscription to the journal *Nonlinearity in Biology, Toxicology and Medicine*, which is a peer-reviewed quarterly journal. In addition there will be a Society Newsletter developed for the membership. Members will receive a 25% reduction in registration fees to the International Conference on Hormesis: Implications for Toxicology, Medicine and Risk Assessment, the Annual Meeting of the International Hormesis Society.

Applications should be mailed to:
BELLE Office
Environmental Health Sciences Program
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PLATFORM PRESENTATIONS MONDAY, JUNE 6, 2005

Morning

8:30am – Noon *Campus Center Auditorium*

Session I: PLENARY

Moderator: Edward Calabrese, *University of Massachusetts, Amherst, MA*

- 8:30am **Hormesis in Precautionary Regulatory Culture: Models Preferences and the Advancement of Science**
Jaap C. Hanekamp, *CEO HAN, Zoetermeer, The Netherlands*
- 9:15am **Stochastic Thresholds: A Novel Explanation for Nonlinear Dose Response**
Bobby Scott, *Lovelace Respiratory Research Institute, Albuquerque, NM*
- 10:00am **Break 163C Campus Center**
- 10:30am **The Risk Communication Challenge of Hormesis**
David Ropeik, *Harvard University, Boston, MA*
- 11:15am **The Emergence of Hormesis in Biology, Toxicology, and Medicine**
Edward Calabrese, *University of Massachusetts, Amherst, MA*

Noon

LUNCHEON SPEAKER *1009 Campus Center*

HORMESIS AND REGULATION

Jonathan B. Wiener, J.D., *Professor of Law, Duke University, Durham, NC*

Afternoon

1:30pm – 5:30pm *Campus Center Auditorium*

Session II: RADIATION

Moderators: Bobby Scott, *Lovelace Respiratory Research Institute, Albuquerque, NM*

Pamela Sykes, *Flinders University and Medical Centre, Bedford Park, South Australia, Australia*

- 1:30pm **Transitions in Biology and the Shape of Radiation Dose-Response Relationships**
Antone Brooks, Lezlie A. Couch, *Washington State University TriCities, Richland, WA*
- 2:00pm **Complex Mutagenesis Dose-Response Relationships after Exposure of pKZ1 Mice to DNA Damaging Agents**
Pamela Sykes, Tanya K Day, Sarah Swinburne, Gouxin Zeng, Antony M. Hooker, *Flinders University and Medical Centre, Bedford Park, South Australia, Australia*
- 2:30pm **Mechanisms Underlying Ionizing Radiation-Induced Adaptive and Bystander Responses**
Sonia M. de Toledo, Nesrin A. Asaad, Badri N. Pandey, Perumal Venkatachalam, *New Jersey School of Medicine, Newark, NJ*
Douglas R. Spitz, *University of Iowa, Iowa City, IA*
Roger W. Howell, Edouard I. Azzam, *New Jersey School of Medicine, Newark, NJ*
- 3:00pm **Break 163C Campus Center**
- 3:30pm **Adaptive Response and Bystander Effects in Human and Non-Human Biota**
Carmel Mothersill, Colin Seymour, *McMaster University, Hamilton, Ontario, Canada*
- 4:00pm **Multicellular Responses to Ionizing Radiation**
Mary Helen Barcellos-Hoff, *Lawrence Berkeley National Laboratory, Berkeley, CA*
- 4:30pm **Radiation Risk Prediction and Genetics: The Influence of the P53 Gene in vivo**
Ron Mitchel, *Atomic Energy of Canada Limited, Chalk River, ON, Canada*
- 5:00pm **Suppression of Disease Development and Tumorigenesis by Low Level Radiation**
Kazuo Sakai, *Central Research Institute of Electric Power Industry, Tokyo, Japan*
- 6:00pm **DINNER** *1009 Campus Center*

PLATFORM PRESENTATIONS

TUESDAY, JUNE 7, 2005

Morning

8:30am – Noon Campus Center Auditorium

Session III: HORMESIS IN AGING RESEARCH AND INTERVENTIONS

Moderator: Suresh Rattan, *University of Aarhus, Denmark*

8:30am **Hormetic Modulation of Aging and Longevity by Mild Heat Stress**

Suresh Rattan, *University of Aarhus, Denmark*

9:05am **The Hormetic Effects of Hypergravity on Longevity and Aging in the Fruit Fly *Drosophila melanogaster***

Nadege Minois, *Institute of Molecular Biotechnology, Vienna, Austria*

9:40am **The Unexpected Anabolic Phenotype and Extended Longevity of Skin Fibroblasts after Chronic Glucocorticoid Excess**

Harris Pratsinis, *National Centre for Scientific Research "Demokritos", Athens, Greece*

Stylianos Tsagarakis, *"Evangelismos" Hospital, Athens, Greece*

Irene Zervolea, Dimitri Stathakos, *National Centre for Scientific Research "Demokritos", Athens, Greece*

Nikos Thalassinou, *"Evangelismos" Hospital, Athens, Greece*

Dimitris Kletsas, *National Centre for Scientific Research "Demokritos", Athens, Greece*

10:15am **Break 163C Campus Center**

10:45am **Exercise Activation of Cellular Antioxidant Signaling Pathway**

Li Li Ji, *University of Wisconsin, Madison, WI*

Maria-Carmen Gomez-Cabrera, Jose Vina, *University of Valencia, Valencia, Spain*

11:20am **Hormesis and Regular Exercise in Aging: Possible Beneficial Effects of Oxidative Stress**

Sataro Goto, *Toho University, Chiba, Japan*

Zsolt Radak, *Semmelweis University, Hungary*

Hisashi Naito, *Juntendo University, Japan*

Hae Young Chung, *Pusan National University, Korea*

Afternoon

1:30pm – 5:00pm Campus Center Auditorium

Session IV: TOXICOLOGY

Moderator: James E. Klaunig, *Indiana University of Medicine, Indianapolis, IN*

1:30pm **Effect of Low-Dose Radiation on Male Germ Cell Death**

G-W Liu, S-L Gong, *Jilin University, Changch, China*
L Cai, *University of Louisville, Louisville, KY*

2:00pm **Examination of the Hormesis Response in the Microtox Bioassay as Induced by Binary Mixtures of Chemicals**

Cecelia L Youngblood-Oswald, *Weston Solutions Inc., Westchester, PA*

Edwin E. Herricks, *University of Illinois at Urbana-Champaign, Urbana, IL*

2:30pm **Hormesis Mechanisms in Hepatocarcinogenesis**

James E. Klaunig, *Indiana University of Medicine, Indianapolis, IN*

3:00pm **Break 163C Campus Center**

3:30pm **Hormetic Induction of Antioxidative and Antiapoptotic Proteins for cGMP-mediated Adaptive Tolerance**

C.C. Chiueh, *School of Pharmacy, Taipei Medical University, Taipei, Taiwan*

Tsugunobu Andoh, *Toyama Medical and Pharmaceutical University, Japan*

P. Boon Chock, *National Institute of Heart, Lung, and Blood Institute, Bethesda, MD*

4:00pm **Multiple Effects of Low Lead Levels in Swiss Mice**
Ivo Iavicoli, Giovanni Carelli, *Catholic University of Sacred Heart, Rome, Italy*

Edward J. Stanek III, *University of Massachusetts, Amherst, MA*

Nicolò Castellino, *Catholic University of Sacred Heart, Rome, Italy*

Edward J. Calabrese, *University of Massachusetts, Amherst, MA*

4:30pm **Is Hormesis in Cellular Repair Mechanisms Induced by Water Disinfectant Byproducts Harmful or Beneficial?**

Ahmed E. Ahmed, *University of Texas Medical Branch, Galveston, TX*

Noon

LUNCHEON SPEAKER 1009 Campus Center

REFLECTIONS ON HORMESIS

Ralph Cook, M.D., *RRC Consulting, LLC, Midland, MI*

5:00pm – 7:00pm **POSTER SESSION AND SOCIAL** 163C Campus Center

PLATFORM PRESENTATIONS

WEDNESDAY, JUNE 8, 2005

Morning

8:30am – Noon Campus Center Auditorium

Session V: RISK ASSESSMENT Moderator: Barbara Beck, Gradient Corporation, Cambridge, MA

- 8:30am **Low-Dose Dose-Response Nonlinearities as Adaptive Inventory Control Risk Management Strategies for Tissues**
Louis Anthony Cox, Jr., *Cox Associates and University of Colorado, Denver, CO*
Djangir Babayev, *Cox Associates, Denver, CO*
- 9:00am **The Use of an Evidence-Based Approach for Evaluating the Concept of Hormesis**
Philip S. Guzelian, *University of Colorado, Englewood, CO*
- 9:30am **The Collision of Hormesis with Environmental Chemical and Natural Chemical Exposures: Opportunities and Challenges for Integrating Hormesis into an Improved Understanding of Chemical Health Risks**
James S. Bus, *Dow Chemical Company, Midland, MI*
- 10:00am **Break** 163C Campus Center
- 10:30am **The Hormetic Hypothesis and Its Risks Assessment Implications**
Michael Dourson, *TERA, Cincinnati, OH*
- 11:00am **Implications of Homeostasis for Dose-Response at Different Levels of Biological Organization**
Rory Conolly, *CIIT Centers for Health Research, Research Triangle Park, NC*
- 11:30am **Risk Assessment Round Table Discussion: Should Hormesis be Considered in Risk Assessment and in Regulatory Decision-Making?**

POSTER SESSION

5:00pm – 7:00pm 163C Campus Center

Complex Low-Dose Dose-Response Nonlinearities and Abrupt Transitions: Insights from Cadmium Lung Carcinogenesis

Louis Anthony (Tony) Cox, Jr., *Cox Associates and University of Colorado, Denver, CO*

Dynamics of Hormesis and of Inverse Hormesis for Cytotoxicity-Mediated Carcinogenesis

Louis Anthony (Tony) Cox, Jr., *Cox Associates and University of Colorado, Denver, CO*

Ciprofloxacin-Induced Cytotoxicity in Primary Cultures of Rat Astrocytes and Protection by Vitamin E

Aylin Gürbay, *University of Hacettepe, Ankara, Turkey*
Brigitte Gonther, *Luc Barret, Université Joseph Fourier, La Tronche, France*
Alain Favier, *Université Joseph Fourier, Cedex, France*
Filiz Hincal, *University of Hacettepe, Ankara, Turkey*

Monitoring Stormwater Toxicity: Hormesis in the Microtox Bioassay as an Indicator of Low Dose Effect

Edwin E. Herricks, *University of Illinois at Urbana-Champaign, Urbana, IL*

Effects of Low-Level Exposures to X-Rays on the Anti-tumor Functions of Murine NK Cells

Ewa M. Nowosielska, Aneta Cheda, Jolanta Wrembel-Wargocka, Tomasz Oldak, Marek K. Janiak, *Military Institute of Hygiene and Epidemiology, Warsaw, Poland*

Effects of Low-Level Exposures to X-Rays on Anti-tumor Functions of Murine Peritoneal Macrophages

Ewa M. Nowosielska, Aneta Cheda, Jolanta Wrembel-Wargocka, Marek K. Janiak, *Military Institute of Hygiene and Epidemiology, Warsaw, Poland*

The Health Effects of Different Radiations

Y.C. Luan, M.C. Shieh, S.T. Chen, H. T. Kung, K. L Soong, Y. C. Yeh, T.S. Chou, W.C. Fang, S.L. Yao, C.J Pong, *Nuclear Science & Technology Association, Sincian City, Taiwan, ROC*
S.H. Mong, J.T. Wu, J.M. Wu, H.J. Jen, *Nuclear Biological and Chemical Protection Society, Taipei, Taiwan, ROC*
W. L. Chen, *National Yang-Ming University, Taipei, Taiwan, ROC*
W. P. Deng, *Taipei Medical University, Taipei, Taiwan, ROC*
M. F. Wu, M.L. Shen, *National Taiwan University, Taipei City, Taiwan 10764, ROC*
C.P. Sun, *National Chiao-Tung University, Hsin-Chu City, Taiwan, ROC*

Effects of Diluted Low Molecular Mediators on Activity and Patterns of Fungal Phenol-degrading Enzymes

Elzbieta Malarczyk, Marzanna Pazdzioch-Czochra, Anna Jarosz-Wilkolazka, Janina Kochmanska-Rdest, Aneta Grabarska, Anna Mielniczek, *M. Curie-Skłodowska University, Lublin, Poland*

Understanding the Hormetic Effect of Azadirachtin in an Insect System, Implications in Pest Management

Samindranath Mukherjee, *Entomology Laboratory, National Chemical Laboratory (CSIR), Pune, Maharashtra, India*

Valid Assessment of LDR Health Effects: Essential for Evaluating Radiological Risks

Theodore Rockwell, *Radiation, Science & Health, Inc., Chevy Chase, MD*

Radon Treatment Controversy

Zygmunt Zdrojewicz, MD, *Akademia Medyczna (Medical School), Wrocław, Poland*
Jodi Strzelczyk, Ph.D., *University of Colorado at Denver, Denver, CO*

Adaptive Response in pKZ1 Mouse Prostate after Exposure to Very Low Doses of X-Radiation

Tanya K. Day, Gouxin Zeng, Antony M. Hooker, *Flinders University and Medical Centre, Bedford Park, SA, Australia*
Madhava Bhat, *Royal Adelaide Hospital, Adelaide, SA, Australia*
Pamela J. Sykes, *Flinders University and Medical Centre, Bedford Park, SA, Australia*